



## **1. DESCRIPTION:**

STK86C1051 is a ROM-embedded playback processor which is able to play up to 30-minute digital audio or digital voice data. An 65C02 CPU is embedded with data decompression engine. Flexible Proprietary data compression algorithm is implemented to full use of data memory and to optimize playback quality.

## **2.FEATURES:**

### **Operating**

2.4 to 3.5 V for battery operated applications

32768 Hz resonator applied

### **Low Power Consumption**

1  $\mu$ A at sleep mode

10  $\mu$ A at stand-by mode

1.5 mA at operation mode

### **GPIO**

16-bit programmable I/O port

8 output pins

4 independent chip select pins to external data memory

### **Memory**

2 KB on-chip SRAM

8 MB on-chip mask ROM.

### **Audio Interface**

On-chip 12-bit DAC for voice/audio data playback

### **Decompression Engine is built-in**

Up to 30-minute voice data or up to 15-minute audio

data section dependent bit rate compression

### **Timers are provided**

2 Channels 16-bit Interrupt Timers

Watch Dog Timer



	Algorithm (bps)	duration to playback ( 512K X 16 )
Level 1	5K	26min
Level 2	7.3K	18min
Level 3	9.6K	13min

	Algorithm(bps)	duration to playback ( 512 K X 16 )
Level A1	11.9K	11min
Level A2	14.2K	9min
Level A3	16.5K	8min

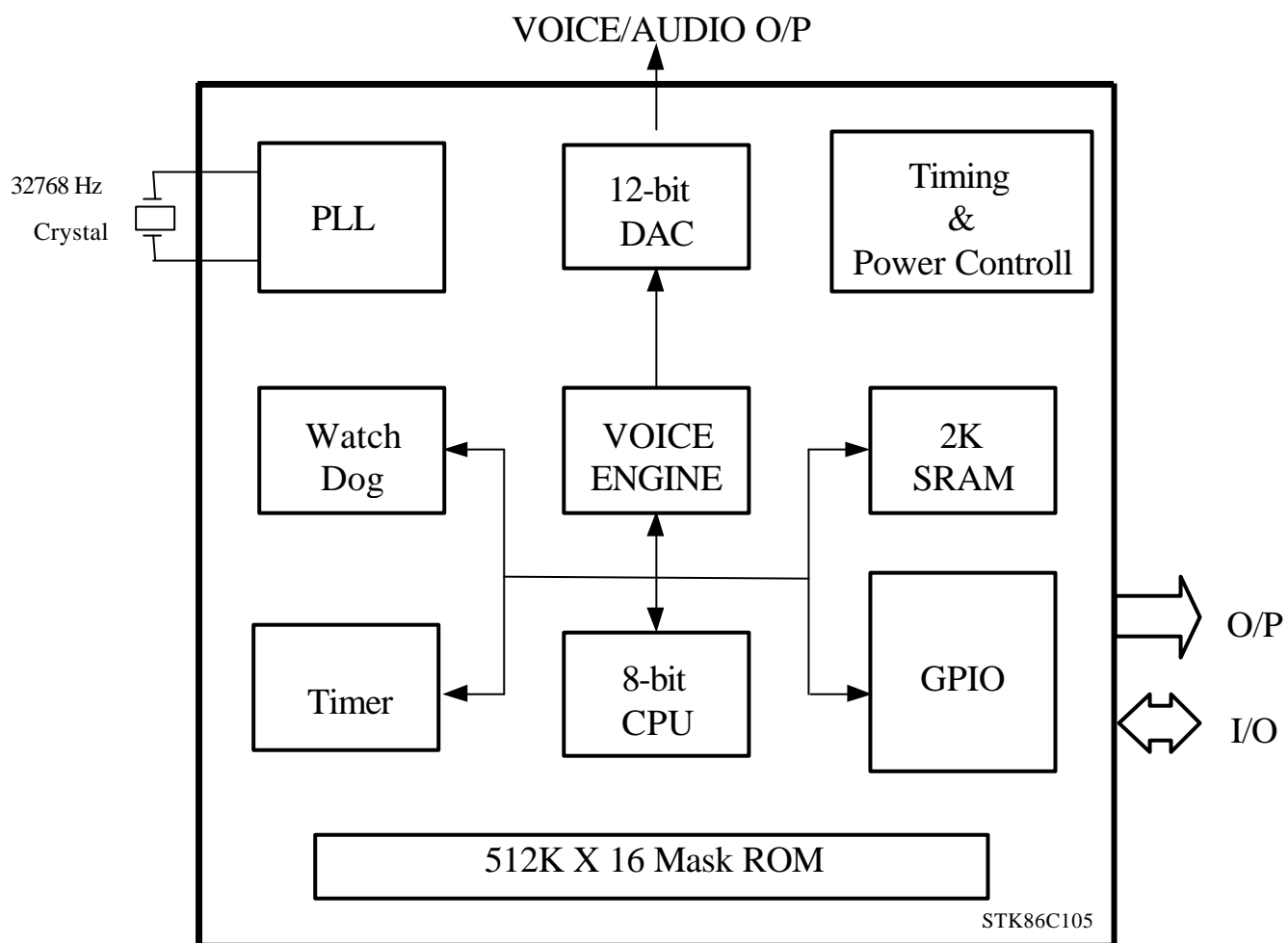


### 3. PIN DESCRIPTION

Pin name	I/O	Count	Active	Function description
#RES	I	1	L	Internal pull-up pin to reset whole chip
DAC	O	1		Output from DAC
CLK32I	I	1		Control signal from 32768 clock
CLK32O	O	1		Control signal to 32768 clock
CAP	I	1		Capacitor for PLL circuit
PA[15...0]	I/O	16		Port A
PB[11...0]	I/O	8		Port B
VDD1,2,3,4,5		2		Positive power
GND1,2,3,4,5		2		Ground
PLLVDD		1		
PLLGND		1		
DACVDD		1		
DACGND		1		



#### 4. BLOCK DIAGRAM :





## 5. ABSOLUTE MAXIMUM RATINGS

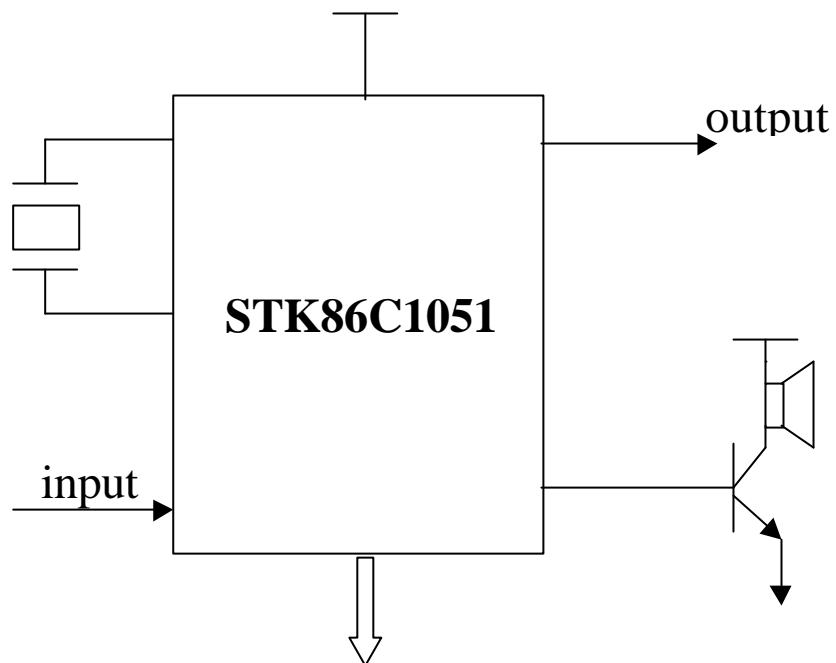
Operating temperature ..... 0 to 70  
Storage temperature ..... -65 to 150  
Supply voltage ..... 7 V  
Input voltage ..... -0.6 to Vdd+0.6 V

## 6. ELECTRICAL CHARACTERISTIC :

Parameter	Symbol	@Pin	Condition	Max	Typ.	Min	Unit
Supply Voltage	Vdd			3.5	3.0	2.6	V
Operating current	Idd	VDDs	Vdd=3V,Clock sys=8Mhz				mA
Standby current	Istdby	VDDs	Vdd=3V,Clock sys=8Mhz	10	1		mA
Sleep mode current	Islp	VDDs	Vdd=3V	1			μA
Input high voltage	Vih		Vdd=3.0V				V
Input low voltage	Vil		Vdd=3.0V				V
Input high leakage current	Iih		Vih=Vdd				μA
Input low leakage current	Iil		Vil=0				μA
Output high voltage	Voh		Ioh=-2mA				V
Output low voltage	Vol		Iol=4mA				V
Audio output	Io	DAC	Vdd=3V, RI=100 OHM				mA



## 7.APPLICATION DIAGRAM





**Syntek Semiconductor Co., Ltd.**

Customer Information Sheet for STK86C1051

1. Customer's Name : \_\_\_\_\_

2. Project title : \_\_\_\_\_

3. Syntek part number : \_\_\_\_\_ (will be filled by Syntek)

4. Package ----- ( ) Chip ( ) QFP

5. Customer code :

Code form ----- ( ) EPROM ( ) file \_\_\_\_\_

Checksum ----- 00000-3FFFF \_\_\_\_\_H

40000-7FFFF \_\_\_\_\_H

80000-BFFFF \_\_\_\_\_H

C0000-FFFFF \_\_\_\_\_H

00000-FFFFF \_\_\_\_\_H

6. Operating conditions :

Operating voltage : \_\_\_\_ - \_\_\_\_ V

Operating frequency : \_\_\_\_ Hz

Operating current : \_\_\_\_ mA

Sleep current : \_\_\_\_ uA

Customer : \_\_\_\_\_ Date : \_\_/\_\_/\_\_

Salesman : \_\_\_\_\_ Date : \_\_/\_\_/\_\_